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EXAMINER

BAYOU, AMENE SETEGNE

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3,5-18 are rejected under 35 U.S.C 103(a) as being unpatentable over Kojima et al. (US patent publication number 6547538) in view of Sasaki et al. (US patent number 6727627 which is functionally equivalent to WO01/06624).

3. In re claim 1, Kojima et al disclose an electric compressor including:

- A hermetic compressor ,in figure 3,comprising :a hermetic container (101) ;a motor element (203) accommodated in the hermetic container (101) ; and a compressing element (109) that is accommodated in the hermetic container (101) and driven by the motor element (303) , wherein the compressing element (110) has a shaft including an eccentric shaft (117) and a main shaft (116), and a main bearing (320) for pivoting the main shaft (116) , the motor element is a bipolar permanent magnet motor (paragraph [0052]) that has a stator (113) including a stator core and a rotor (315) including a rotor core ,the rotor (315) having a built-in permanent magnet (315a) in a rotor core (315) , a hollow bore (306) extends from a top end, the bottom end the top end on the compressing

Art Unit: 3746

element side of the rotor core. Kojima et al ,however fail to disclose the following limitation which is taught by Sasaki et al:

- An axial length of the permanent magnet (45) being less than the axial length of the rotor core (42), the permanent magnet is positioned in the rotor core so that it extends from a bottom end opposite the top end of the rotor ,in figure 18.

4. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the compressor of Kojima et al et al by making the axial length of the permanent magnet to be less than that of the rotor core as taught by Sasaki et al in order to reduce the size of the compressor.

5. In re claim 2 Kojima et al in view of Sasaki et al as applied to claim 1 disclose the claimed invention:

Kojima et al disclose:

- Axial length of the rotor core (315) is longer than axial length of a stator core (113) of the stator, hence the wide magnetic path is provided to smooth the flow of the magnetic flux by the permanent magnet, in figure 3.

6. In re claim 3, Kojima et al in view of Sasaki et al as applied to claim 2 disclose the claimed invention:

Kojima et al disclose:

- Both axial ends of the rotor core (115) are disposed outside both axial ends of the stator core (113), respectively, in figure 3.

Art Unit: 3746

7. In re claim 5, Kojima et al in view of Sasaki et al as applied to claim 2 disclose the claimed invention:

Kojima et al disclose:

- Axial length of the permanent magnet (115a) is shorter than axial length of the rotor core (115), and the permanent magnet covers a region having no bore in the axial direction of the rotor, in figure 1.

8. In re claim 6, Kojima et al in view of Sasaki et al as applied to claim 2 disclose the claimed invention:

Kojima et al disclose:

- The rotor core (315) has a cylindrical through hole having a first diameter into which the shaft (104) is inserted, the bore is a cylindrical recessed part that is formed in the upper part of the through hole and has a second diameter (306) larger than the first diameter (i.e. the diameter that fits shaft 104) ,the permanent magnet (315a) has an axial length shorter than the axial length of the rotor core (315) , and covers a region of the first diameter in the rotor in an axial direction of the rotor core, in figure 3 and 4.

9. In re claim 7, Kojima et al in view of Sasaki et al as applied to claim 1 disclose the claimed invention:

Kojima et al disclose:

- The main bearing (120), in figure 3, is made of magnetic material (paragraph [0039]), and the wide magnetic path is provided (i.e. due to the fact that axial length of the rotor core is longer than axial length of a

Art Unit: 3746

stator core of the stator as shown in figure 3 and also discussed in claim 2

above) to smooth the flow of the magnetic flux by the permanent magnet.

10. In re claim 8, Kojima et al in view of Sasaki et al as applied to claim 7

disclose the claimed invention:

Kojima et al disclose:

- The main bearing (120) is one of a casting and a molded product that is made of iron- based sintered material, in paragraph [0039]). Please note that in accordance to MPEP 2113, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. Please also note that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product, i.e., the main bearing, does not depend on its method of production, i.e. ----. ***In re Thorpe, 227 USPQ 964, 966 (Federal Circuit 1985).***

11. In re claim 9 and 13, Kojima et al in view of Sasaki et al disclose the claimed invention except mentioning that the axial length of the bore is 1/3 of axial length of the rotor core or more. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the proper axial length of the bore based to get the practical compressor size, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).*

12. In re claim 10 and 14, Kojima et al in view of Sasaki et al disclose the claimed invention except mentioning that the clearance between the surface of the bore and the Outer diameter of the main bearing is 0.5 to 3 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the proper clearance based on design parameters, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

13. In re claim 11,15,16, Kojima et al in view of Sasaki et al as applied to claim 1 inherently disclose that the motor element is a self-starting permanent magnet synchronous motor (see Kojima et al paragraph [0044]) the motor element has many conductor bars (inherently) of a cage conductor for start on the outer periphery of the rotor core, and the permanent magnet is disposed in the inner peripheral side of the conductor bars.

14. In re claim 12, 17,18 Kojima et al in view of Sasaki et al as applied to claim 1 disclose the claimed invention:

Kojima et al disclose:

- The permanent magnet (315a) is a rare-earth magnet, in paragraph [0052], lines 5-7.

### ***Response to Arguments***

15. Applicant's arguments with respect to claims 1 -18, filed 09/16/09 have been considered but are not persuasive.

Art Unit: 3746

16. Applicant in page 2, paragraphs 1-4 argued that neither Kojima nor Sasaki disclose or teach a permanent magnet that extends from the end of the rotor core opposite the bore. But **claim 1 doesn't recite** that the magnet extends from the end of the rotor core **opposite the bore** but merely state that the permanent magnet is positioned so that **it extends from a bottom end opposite the top end of the rotor**. As clearly pointed out in the previous office action Kojima et al in figure 4 disclose permanent magnet (415a) positioned in the rotor core (415) with attached short circuit rings similar to applicant's invention in figure 1. Sasaki et al as discussed in the office action also disclose a permanent magnet (45) in figures 18 and 20 which are positioned in the rotor core (42). Further, the axial length of permanent magnets (45) of Sasaki et al are shorter than the axial length of the rotor core (42) as shown in figures 18 and 20.

Applicant submitted a translation of the foreign priority document and thus the alternate claim rejection in view of Shafer et al is withdrawn.

### ***Conclusion***

17. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



Art Unit: 3746

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday, 9:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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